Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A fuel cell system comprising:

a fuel cell stack formed by stacking a plurality of fuel cells for generating power through an electrochemical reaction utilizing reactant gas,

wherein an operation mode of the fuel cell stack is determined based on a voltage rising condition of the fuel cell stack that is detected after supply of the reactant gas is started, and

wherein the voltage rising condition is determined based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack.

2. (Currently Amended) A fuel cell system comprising:

a fuel cell stack formed by stacking a plurality of fuel cells for generating power through an electrochemical reaction utilizing reactant gas;

voltage rising detection means for detecting a voltage rising condition of the fuel cell stack after supply of the reactant gas is started, wherein the voltage rising detection means is configured to determine the voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack; and

control means for determining an operation mode in accordance with the voltage rising condition detected by the voltage rising detection means and operating the fuel cell stack in the determined operation mode.

3. (Currently Amended) A fuel cell system comprising:

a fuel cell stack formed by stacking a plurality of fuel cells configured to generate power through an electrochemical reaction utilizing reactant gas;

a voltage rising detector configured to detect a voltage rising condition of the fuel cell stack after supply of the reactant gas is started, wherein the voltage rising detector is configured to determine the voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack; and

a control unit configured to determine an operation mode in accordance with the voltage rising condition detected by the voltage rising detector and configured to operate the fuel cell stack in the determined operation mode.

4. (Previously Presented) The fuel cell system according to claim 3, wherein the voltage rising detector is configured to determine the voltage rising condition by determining whether the differential coefficient of the voltage value of the fuel cell stack with respect to time is positive or negative.

5. (Withdrawn) The fuel cell system according to claim 3, wherein the voltage rising detector is configured to determine the voltage rising condition by determining whether or not a voltage value detected after a predetermined time period has elapsed from starting the supply of the reactant gas exceeds a predetermined threshold value.

6. (Previously Presented) The fuel cell system according to claim 3, wherein the control unit is configured to vary a value of load current obtained from the fuel cell stack in accordance with the voltage rising condition detected by the voltage rising detector.

7. (Previously Presented) The fuel cell system according to claim 6, wherein the control unit is configured to reduce the value of load current obtained from the fuel cell stack to less than that for a normal operation when the differential coefficient is positive.

8. (Withdrawn) The fuel cell system according to claim 6, wherein the control unit is configured to reduce the value of load current obtained from the fuel cell stack to less than that for a normal operation when a voltage value detected after an elapse of a predetermined time period does not exceed a threshold value.

9. (Withdrawn) The fuel cell system according to claim 3, further comprising a stack heating unit configured to heat the fuel cell stack,

wherein the control unit is configured to vary a heating value of the stack heating unit in accordance with the voltage rising condition detected by the voltage rising detector.

10. (Withdrawn) The fuel cell system according to claim 9, wherein the control unit is configured to increase the heating value of the stack heating unit to more than that for a normal operation when the differential coefficient is positive.

11. (Withdrawn) The fuel cell system according to claim 9, wherein the control unit is configured to increase the heating value of the stack heating unit to more than that for a normal operation when a voltage value detected after an elapse of a predetermined time period does not exceed a threshold value.

12. (Withdrawn) The fuel cell system according to claim 3, further comprising a reactant gas flow rate control unit configured to control a flow rate of the reactant gas supplied to the fuel cell stack,

wherein the control unit is configured to vary the flow rate of the reactant gas supplied to the fuel cell stack by controlling the reactant gas flow rate control unit, in accordance with the voltage rising condition detected by the voltage rising detector.

13. (Withdrawn) The fuel cell system according to claim 12, wherein the control unit is configured to increase the flow rate of the reactant gas to more than that for a normal operation when the differential coefficient is positive.

14. (Withdrawn) The fuel cell system according to claim 12, wherein the control unit is configured to increase the flow rate of the reactant gas to more than that for a normal operation when a voltage value detected after an elapse of a predetermined time period does not exceed a threshold value.

15. (Withdrawn) The fuel cell system according to claim 3, further comprising a circulatory unit configured to circulate a heating medium through the fuel cell stack,

wherein the control unit is configured to vary a flow rate of the heating medium in accordance with the voltage rising condition detected by the voltage rising detector.

16. (Withdrawn) The fuel cell system according to claim 15, wherein the control unit is configured to increase the flow rate of the heating medium to more than that for a normal operation when the differential coefficient is positive.

17. (Withdrawn) The fuel cell system according to claim 15, wherein the control unit is configured to increase the flow rate of the heating medium to more than that for a normal operation when a voltage value detected after an elapse of a predetermined time period does not exceed a threshold value.

18. (Withdrawn) The fuel cell system according to claim 3, further comprising:

a circulatory unit configured to circulate a heating medium through the fuel cell stack; and

a medium heating unit configured to heat the heating medium,

wherein the control unit is configured to vary a temperature of the heating medium in accordance with the voltage rising condition detected by the voltage rising detector.

19. (Withdrawn) The fuel cell system according to claim 18, wherein the control unit is configured to raise the temperature of the heating medium to higher than that for a normal operation when the differential coefficient is positive.

20. (Withdrawn) The fuel cell system according to claim 18, wherein the control unit is configured to raise the temperature of the heating medium to higher than that for a normal operation when a voltage value detected after an elapse of a predetermined time period does not exceed a threshold value.

21. (Withdrawn) The fuel cell system according to claim 3, further comprising a reactant gas pressure control unit configured to control pressure of the reactant gas supplied to the fuel cell stack,

wherein the control unit is configured to vary the pressure of the reactant gas supplied to the fuel cell stack by controlling the reactant gas pressure control unit, in accordance with the voltage rising condition detected by the voltage rising detector.

22. (Withdrawn) The fuel cell system according to claim 21, wherein the control unit is configured to increase the pressure of the reactant gas to higher than that for a normal operation when the differential coefficient is positive.

23. (Withdrawn) The fuel cell system according to claim 21, wherein the control unit is configured to increase the pressure of the reactant gas to higher than that for a normal operation when a voltage value detected after an elapse of a predetermined time period does not exceed a threshold value.

24. (Previously Presented) The fuel cell system according to claim 3, wherein the voltage rising detector is configured to detect the voltage rising condition by measuring voltages or an average thereof, of at least a set of fuel cells placed near ends of the fuel cell stack.

25. (Previously Presented) The fuel cell system according to claim 3, wherein, upon starting the fuel cell stack below freezing, the control unit is configured to determine the operation mode of the fuel cell stack in accordance with the voltage rising condition detected by the voltage rising detector and is configured to operate the fuel cell stack in the determined operation mode.

26. (Previously Presented) The fuel cell system according to claim 3, wherein the control unit is configured to determine the operation mode of the fuel cell stack in accordance with the voltage rising condition detected by the voltage rising detector and upon a determination of whether an outside temperature is below a freezing temperature of water, and wherein the control unit is configured to operate the fuel cell stack in the determined operation mode.